

Research Paper

# Pandemic Effects on Placemaking and Human Well-being; Demystifying the District of Madinaty, Cairo

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## Abstract

COVID-19's worldwide spread emphasized and accentuated the priority of the individual's well-being for a healthy city. The pandemic demonstrated that a resilient city's characteristics are neither related to being rich or poor nor to being old or new. Nevertheless, city placemaking criteria such as accessibility and comfort have had a significant role in easing the brunt of the pandemic and increasing human tolerance to maintain human behavior. This paper focuses on investigating the role of using public spaces through the pandemic era in Madinaty, one of the attractive residential districts in Cairo, Egypt. This is done while taking into account that Madinaty was originally designed with the claim that it meets international standards regarding a healthy city's criteria, in which it provides community services and quality open spaces within walking distance. Before the pandemic, people's appearance is different in the outdoor public spaces from the pandemic crisis. However, during the pandemic and afterward, their perspective of outdoor public spaces changed, and the use of these spaces increased against expectations. Post-pandemic, outdoor spaces between residential districts proved to be the lungs that nourished the city and enhanced people's well-being. This study analyzes Madinaty's public spaces as an applied case study for the placemaking approach and observe how such characteristics of "sociability; uses and activities; comfort; and image, access, and linkage" contributed mainly to improving human well-being and combat the pandemic's drawbacks, whether during pandemics exclusive precautionary regulations or at other times, by highlighting the research's following two main questions: First, how did COVID-19 cause the residents to use public spaces? Second, how does the placemaking of public plazas play a role in people's presence during the post-pandemic?. The research used a systematic review that relied on a qualitative approach focusing on observation, a questionnaire designed for Madinaty city residents, and a semi-structured interview for the central agency of Madinaty to measure the research's two main independent variables: the placemaking indicators and COVID-19's regulations and precautionary measures that influenced people's appearance in the public plaza during and following the pandemic, consequently coming up with an adapted framework to enhance the city's public spaces tolerance at all times to sustain the community's well-being. It can help in better understanding the place and place-making to create a more robust and resilient city.

## Keywords

COVID-19, Health Environment, Human Needs, Post-pandemic Placemaking, Healthy City

## 1. Introduction

Most of the world's population lives in cities, UN-HABITAT states "A healthy city is one in which citizens have access to basic infrastructure.....where women and children can walk without fear, and where people can enjoy parks, squares, and other public spaces in safety and comfort ". (Ghanem, Ahmad and Aboualy, 2021).

Cities are sensitive to a variety of stressors due to the great concentration of people and activity. Good examples of this are natural and man-made calamities. For this reason, applying the healthy city concept to reduce disease risk as WHO Satisfy "physical, mental and social well-being, and not just the absence of



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disease” (Boonekamp et al., 1999). The World Health Organization (WHO, 2017) understood the importance of a Built environment and physical activities to improve the health city environment. These two factors focus on:

- Built environment: outdoors, public spaces, squares, connecting/traffic spaces, and thoroughfares such as roads, pavements, and building edges
- Physical activities: cycling, walking, exercise, and transportation

The need for different urban public places that encourage activity and human contact is emphasized. Good public spaces are the key to establishing livability, safety, and diversity in activities taking into concentration groups of users such as children, teenagers, and the elderly (Gehl et al., 2002). As UN-HABITAT mentioned; Healthy public spaces enhance productivity and economic sustainability by increasing the value of space and cost-efficiency. Moreover, healthy public spaces integrate green spaces, walking paths, cycling, and reduced vehicles. Additionally, healthy public spaces improve well-being and human health (UN-Habitat, 2015). To understand why people want to go to outdoor public spaces, placemaking provides a modern model that understands the resident’s needs to enjoy public spaces.

Theories of placemaking were introduced in literature after the mid-nineties when urban studies revolved around humanizing cities and building places for people (PPS, 2007) Scholars such as Edward Relph in his theory of place and place lessness and Yi-Fu Tuan distinguished between spaces versus places according to the value people add to a certain location. Explaining that a location with a physical urban feature is defined as an urban space, while the human interaction experienced in such space gives it the place definition (Edward Relph, 1976) (Yi-fu Tuan, 1974). The recent post-pandemic provides the opportunity for cities to understand its impact on cities, minimize risks, thus enhancing their urban resilience (Sharifi and Khavarian-Garmsir, 2020).

The speed with which the virus spread led to dramatic actions. Many countries tried to control the number of patients by introducing lockdown protocols that included forced curfews, social distancing, and wearing face masks. In addition to a significant portion of people consequentially working from home, public spaces such as gardens, parks, and markets were closed. The built environment in a neighborhood was changed to provide a new lifestyle that adapted to the global changes (UN-Habitat, 2020). Likewise, public street life behavior was significantly transformed which, in turn, affected the physical and non-physical urban environment. Furthermore, cancellations of public events and decreasing people’s public appearances led to modifications in public spaces (Abusaada and Elshater, 2021).

This paper focuses on social changes and activity patterns while using public spaces in Madinaty City during the COVID-19 pandemic. The research intends to comprehend the causes of this alteration in resident behavior. By the same token, it also examines the various uses of public spaces and the reasons behind them, investigating the role of public spaces before, during COVID-19, and toward habitation to draw back the pandemic infection.

## 2. Methodology

### 2.1 Data Sources

This research monitors how people's appearance affects public spaces during the post-pandemic era. The data were collected to examine the placemaking validity during the crisis and classified into two phases. The first phase is the literature review based on journal articles that address the subjects of healthy public spaces, placemaking, and healthy city principles. The review also includes twenty-one articles talking about public spaces dealing with COVID-19 and, additionally, ten international case studies of public spaces in healthy cities and the cities with the highest number of disease outbreaks. The second phase is using systematic review, site inventory, semi-structured interviews with Madinaty residents as part of understanding user activity changes while using public spaces, and an online questionnaire to understand the changes in user patterns before and during the crisis. The site inventory is based on

comparing the principles of public spaces with the current situation in Madinaty public spaces. This sense of choice is based on the questionnaire, face-to-face interviews with residents, and their responses, such as the appearance of people in different public spaces in Madinaty city, during and before COVID-19. Likewise, we used a mobile phone camera to take images during different times on weekdays and weekends, which required two-month visits to each public space in Madinaty. Our research also included observing and counting the number of residents who used outdoor spaces at different times during the day. This part aims to investigate the impact of the pandemic on human behavior patterns.

The semi-structured interviews were done face-to-face with Madinaty residents to explain their social life changes before and during the catastrophe. The questionnaire was held online using a Google form to evaluate whether people preferred using indoor as opposed to outdoor public spaces, assess people’s awareness of the importance of public spaces, and evaluate the changes in users’ activities while using outdoor public spaces before and during COVID-19.

The following chart describes the paper's structure;

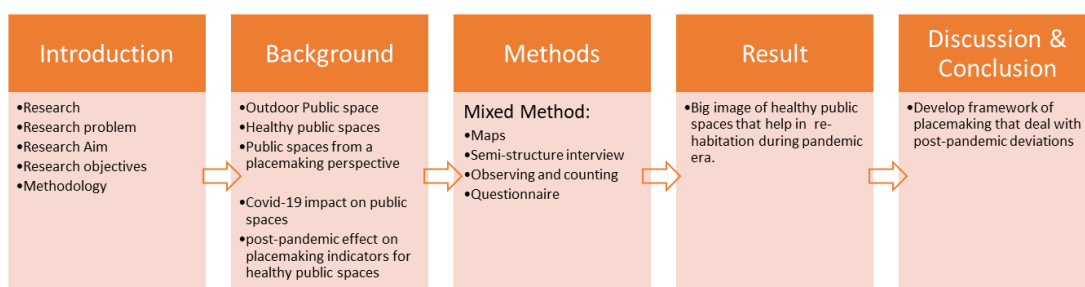


Figure 1. Research Structure.

### 3. Literature Review

Through literature review, the following aspects were clarified understanding of healthy public spaces principles, placemaking indicators, and COVID-19 impacts on public space regulation. This section aims to investigate the two variables, placemaking and pandemic global changes, and how they could play a great role in health and well-being in public spaces.

#### 3.1 What Is the Meaning of Outdoor Public Spaces?

Public spaces are shared places between building blocks in any city that allow people free interaction. According to Kevin Lynch, the image of the city theory public spaces shape can defer either in linear shapes such as streets or it can take the shape of squares and plazas defined as nodes in his book (Kevin Lynch, 1960)-

#### 3.2 Healthy Public Spaces

Planning and evaluating these common spaces' efficiency should consider in priority engaging the main daily users alongside local stakeholders and urban professionals. The importance of public spaces is to enhance social and cultural interaction by creating meeting places for each gender, age, and people with special needs. Promoting safety and security with accessible segregated zones to each group of people; Furthermore, healthy public spaces integrate green spaces, walking paths, bike paths, and reduced vehicles and therefore, additionally, improve well-being and human health (UN-Habitat, 2015).

#### 3.3 Public Spaces from a Placemaking Perspective

Theories of placemaking were introduced in the literature after the mid-nineties when urban studies revolved around humanizing cities and building places for people. As quoted from the Project for Public Spaces (PPS), their mission revolves around communities and encourages their engagement to reform

the public spaces: "IT TAKES A PLACE TO CREATE A COMMUNITY AND A COMMUNITY TO CREATE A PLACE"(PPS, 2007)-

### 3.4 Design Strategy for Healthy Public Spaces

The PPS validated this definition with measurable principles for implemented places to perform in its great condition;

1. Access & Linkages is measured by studying how connected is the place with a well-connected linkage system, the availability of a readable sign system, also the ability to reach the place within diverse types of convenient transit means.
2. Comfort & Image is measured through how facilitated the place within not just safety measures is, but also green and agreeably aesthetic measures.
3. Uses & Activities is measured by how people are engaged in the place through daily activities and occurring seasonal events, which maintain the level of place occupancy, and economic value.
4. Sociability is measured through how place is welcoming and facilitated to host people of different age groups such as children, the elderly, people with special needs, as well as people with different socioeconomic status.

Healthy public spaces indicators ( agenda 2030)	Placemaking indicators
<b>Use and user:</b> <ul style="list-style-type: none"> <li>• Number and variety of users accessing the public space</li> <li>• Number and variety of activities observed in the public space among time and space.</li> </ul>	<b>Uses &amp; Activities:</b> <ul style="list-style-type: none"> <li>• Sustainable</li> <li>• Celebratory</li> <li>• Indigenous</li> <li>• Useful</li> </ul> <ul style="list-style-type: none"> <li>• Real</li> <li>• Special</li> <li>• Vital</li> <li>• Active</li> <li>• Fun</li> </ul>
<b>Accessibility:</b> <ul style="list-style-type: none"> <li>• Accessibility and presence of qualitative and inclusive facilities for private vehicles.</li> <li>• Accessibility and presence of qualitative and inclusive facilities for bikes</li> <li>• Accessibility and presence of qualitative and inclusive facilities for pedestrians</li> <li>• Accessibility and presence of qualitative and inclusive facilities for public transports.</li> </ul>	<b>Access &amp; Linkages:</b> <ul style="list-style-type: none"> <li>• Continuity</li> <li>• Proximity</li> <li>• Connected</li> </ul> <ul style="list-style-type: none"> <li>• Readable</li> <li>• Walkable</li> <li>• Convenient</li> <li>• Accessible</li> </ul>
<b>Amenities and furniture:</b> <ul style="list-style-type: none"> <li>• Quality of Natural &amp; artificial lighting with good design</li> <li>• Presence and quality of amenities for recreational structures</li> <li>• Presence and quality of seating.</li> <li>• Presence and quality of waste bins</li> <li>• Presence and quality of bike racks</li> <li>• Presence and quality of signage and emergency items</li> <li>• Presence and quality of water and toilets facilities</li> </ul>	<b>Sociability:</b> <ul style="list-style-type: none"> <li>• Diverse</li> <li>• Stewardship</li> <li>• Cooperative</li> <li>• Neighborly</li> <li>• Pride</li> <li>• Friendly</li> </ul> <ul style="list-style-type: none"> <li>• Interactive</li> <li>• Welcoming</li> </ul>
<b>Comfort and safety:</b> <ul style="list-style-type: none"> <li>• Perception of safety &amp; level of security of the public space</li> <li>• Quality of sensorial experience</li> <li>• Overall comfort using the public space, through maintenance, design and Ambiental conditions</li> <li>• Presence of a public space identity, determined by cultural background and users' enjoyment</li> </ul>	<b>Comfort &amp; Image:</b> <ul style="list-style-type: none"> <li>• Historic</li> <li>• Attractive</li> <li>• Charming</li> <li>• Spiritual</li> </ul> <ul style="list-style-type: none"> <li>• Sittable</li> <li>• Walkable</li> <li>• Green</li> <li>• Clean</li> <li>• Safe</li> </ul>
<b>Green environment:</b> <ul style="list-style-type: none"> <li>• Presence and quality of biodiversity in the public space.</li> <li>• Environmental and community resilience.</li> <li>• Presence of energy efficient elements in the public space.</li> </ul>	

Table 1. Relationship between healthy public spaces Agenda 2030 and placemaking indicators.

Source:Author.

## 4. COVID-19 Impact on Public Spaces

Because of the dangers posed by the COVID-19 virus, social distancing and temporary lockdowns have had a substantial negative impact on public life in public places. People’s perception has changed in dealing with public spaces. Many public spaces were closed. Exploring their homes' and residential units' surroundings has helped people adjust to these significant changes.

### 4.1 Review of COVID-19’s Impact on Public Spaces in International Case Studies

Regarding the post-pandemic situation, most public spaces experienced a change in uses, activities, gatherings, and functions as well as an imposition of universal regulations while using them. These worldwide guidelines impacted the perception of placemaking considering safety requirements and public health. This part will analyze international examples to inspect the changes that happened in

public spaces during the post-pandemic by studying the impact of changing users' perceptions, habits, and uses before and after the catastrophe. The selected case studies are based on two main things: 1) the cities that are affected by the pandemic (BBC, 2022) and 2) the top-ranked healthy cities around the world (GHS, 2021)-

#### 4.2 Post-Pandemic Effect on Placemaking Indicators for Healthy Public Spaces

Considering the twenty-one-case study review mentioned before, the healthy public space indicators found that a new indicator appeared, other indicators increased, a third group decreased, and some indicators disappeared. Sociability appeared with social distancing between people to prevent viral transmission with a minimum distance of two meters (Gehl, 2020). Additionally, walkability and cycling increased remarkably in neighborhoods and streets. Disparately, mobility and vehicles traffic decreased between from region to another due to curfews and lockdowns (Cities et al., 2020). The pandemic had a significant impact on public transportation, the private had to adapt to private vehicles and bikes as a safer option (Sharifi and Khavarian-Garmsir, 2020). In some cases, events became virtual using online programs. On the other hand, some cases were turned from indoor to outdoor spaces. The recreational and commercial areas were closed so that the human behavior pattern was changed from shopping areas to outdoor seating benches, gardens, and talking (Askarizad and Safari, 2020). The street furniture and amenities respect social distances and is cleaned and sanitized. Antibacterial products appeared in gardens, and handwashing sanitation and public toilets increased. One of the indicators affected the most by COVID-19 is comfort and safety. Human comfort now is not based on safety and security but also depends on reducing viral transmission in public spaces, increasing air quality, and frequent cleaning as shown in table 2.

Healthy Public spaces indicators	Appeared	Increased	Decreased	Disappeared
<b>Sociability</b>	<ul style="list-style-type: none"> <li>Social Distance Regulations</li> </ul>	<ul style="list-style-type: none"> <li>Walking</li> <li>Cycling</li> <li>Outdoor cafes, kiosks and shops</li> <li>Improve quality of sensorial experience (sounds, smell,....)</li> </ul>		
<b>Access and linkage</b>		<ul style="list-style-type: none"> <li>Environmentally friendly pathways</li> <li>Improve infrastructure for bikes lanes</li> <li>Bike parking</li> </ul>	<ul style="list-style-type: none"> <li>Public transport and vehicles</li> <li>Mobility decrease from region to another during Lockdown</li> <li>Reduce level of traffic on the street</li> </ul>	
<b>Use and Users</b>	<ul style="list-style-type: none"> <li>Changing Educational events from indoor to outdoor</li> <li>Hand washing, sanitation facilities</li> </ul>	<ul style="list-style-type: none"> <li>Public toilets</li> </ul>	<ul style="list-style-type: none"> <li>Culture Events</li> </ul>	<ul style="list-style-type: none"> <li>Closing commercial ,recreational facilities During Lockdown</li> </ul>
<b>Amenities and furniture</b>	<ul style="list-style-type: none"> <li>Pavement license anti Bacterial</li> <li>Design new seating elements to adapt social distance regulations</li> </ul>			
<b>Comfort and Image</b>	<ul style="list-style-type: none"> <li>Human deeds to outdoor to combat the pandemic drawbacks</li> <li>Hygiene</li> <li>Face coverings</li> <li>New Signage for facemask, sanitation &amp; social distance awareness</li> </ul>	<ul style="list-style-type: none"> <li>Air Quality</li> <li>Green coverage for decrease virus transmission</li> </ul>		

Table 2. Post-Pandemic Effect on Placemaking Indicators for Healthy Public Spaces. Source: Author.

## 5. Case Study Selection

Madinaty is a modern city with an area of 12,000 acres, located 40 km east of downtown Cairo, bordered to the north by El Shorouk city and to the southwest by New Cairo. It is full of modern facilities and services such as commercial, health, educational, religious, and entertainment places in addition to housing categorized as detached villas, twin houses, and apartments. The outdoor spaces and landscape are designed to be eco-friendly and provide unique urban spaces to each neighborhood community, full of attractive nodes, disabled-designed, user-friendly, and livable spaces for different ages (Madinaty, 2015). Urban spaces have different varieties in design. For instance, gardens between blocks contain shading areas, vegetation, pedestrian paths, gradation, furniture elements such as seats, energy-efficient



light systems, signs for sense of safety, and sustainable waste systems to achieve self-sufficiency and sustainability (Eladham et al., 2021).

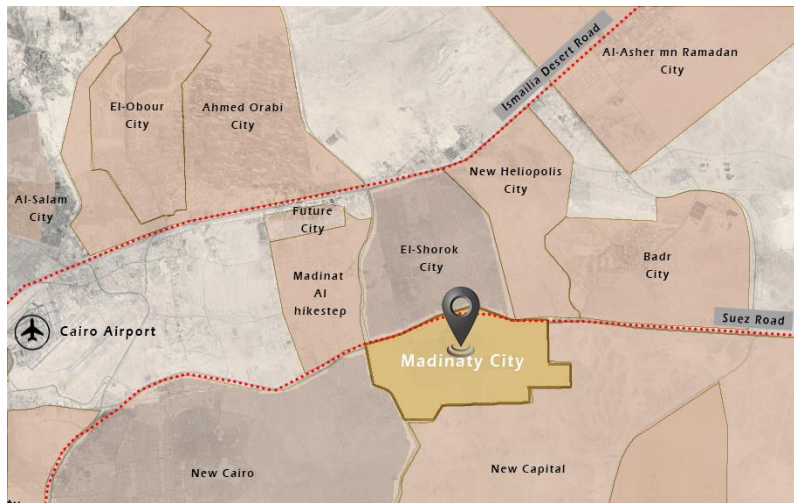


Figure 2. Madinaty Location Map. Source: Author.

This research explored Madinaty city in Cairo, Egypt to examine pandemic changes that affect people’s activities while using outdoor spaces regarding good public spaces criteria, healthy design guidelines, placemaking principles, and post-pandemic regulations.

### 5.1. Placemaking Indicators in Madinaty City

Madinaty city was chosen as a sustainable environment to live in (Eladham et al., 2021), in addition to being designed by healthy public spaces indicators that were mentioned above. Madinaty is designed to respect: 1) Use and users by providing easy access to services with a map radius range of four hundred meters to eight hundred meters, no crossing circulation between vehicles and pedestrians; and, moreover, easy access to backyard gardens that are designed to respect the disabled, kids, and adults.

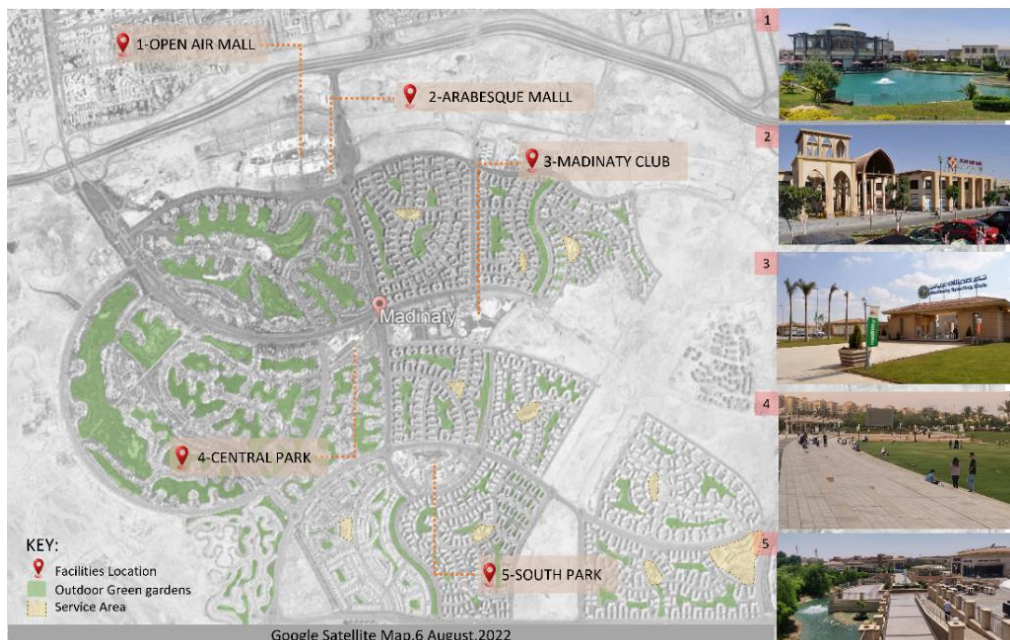


Figure 3. Madinaty Service Map with public Spaces. Source: Author.

2) Accessibility to qualitative and inclusive facilities for public transport, private cars, bikes, and eco-friendly shaded pedestrian paths. Likewise, the accessibility of services is about 5 to 10 minutes walking. The services area is in the middle of each neighborhood and contains a mini supermarket, nursery,

mosque, pharmacy, and electricity charger office. It further includes bus stops and public parking for private vehicles and bikes alike.

3) Amenities and furniture through the presence and quality of recreational structures, natural light, light pillars, signage, emergency items, and garbage bins for people and dog wastes in outdoor spaces. Added to that is a sustainable underground waste management system (Khattab, 2015). Each neighborhood is surrounded by outdoor spaces (gardens, pedestrian paths, seating areas, cycle lanes).



Figure 4. Night lights, dog wastes, sustainable garbage bins. Source:Author.

4) Sociability where public spaces are welcoming and facilitated to host people of different age groups such children and the elderly with special needs. Landscaping design provides sustainability and self-sufficiency of public spaces via choosing the right plants, vegetation, and trees that deal with public space function (Eladham et al., 2021).

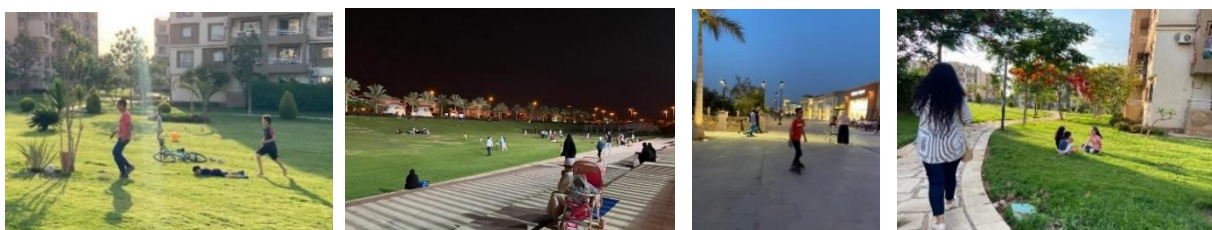


Figure 5. Different activities in in Madinaty outdoor public spaces. Source:Author.

5) Comfort and safety such that the perception of safety & security level of the public space are extraordinary concerning security systems such as CCTV and security guards working day and night shifts. The quality of censored experience was achieved by using landscape elements that reduced vacuum temperature. Overall, comfort while using the public space—made possible through regular maintenance, design, and ambient conditions, increases. The presence of a public space identity is determined by cultural background and users’ enjoyment. Conjointly, the percentage of green coverage is 75% in the form of paths, presented by biodiversity, environmental, and community resilience in the public space; and, additionally, an energy-saving external lighting system along with the provision of signs and guiding signs for a sense of safety (Eladham et al., 2021).



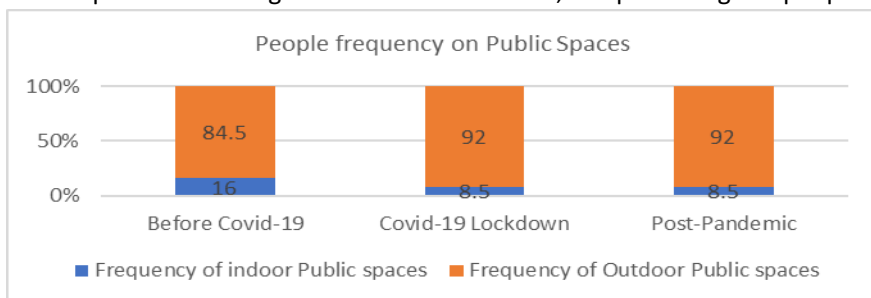
Figure 6. Waste system and electricity sustainable solar cells. Source: Guidelines for sustainable urban zero pollution community

### 5.2 Analysis Findings from the Questionnaire Survey

The fourth phase focused on assessing human behavioral changes while using public spaces such as user’s activities, the human pattern according to pandemic drawcard, and the accessibility of these public spaces. The target audience was Madinaty residents that lived in Madinaty before and during COVID-19. The questionnaire is divided into three parts; the first part shows the data collection for users according



to the demographic structure. The responses numbered 112, forty from males and seventy-two from females, equal to 35.7% male and 64.3% female. Ages were classified into three categories: the first age group included those who were 25 years or younger; the second age group constituted those aged 25 to 35; and the last group comprised of individuals 35 years and above. Seventeen persons were younger than 25 years; 24 persons were 25 to 35 years; and the largest proportion belonged to the 35+ years group, made up of 71 persons. The results showed that 12.5% were students, 65% were workers, and 22.5 % non-workers. As for marital status, responses were 26.8% single, 20.5% married, and 52.7% married with children. The second part highlighted a major factor that affects placemaking indicators for public spaces, by reviewing the international case studies on COVID-19’s impact on public spaces and focusing on how people preferred to go whither indoor or outdoor public spaces, human pattern changes, physical activity, and the accessibility to public spaces. The survey results showed that before the COVID-19 84.5% of people preferred going outdoors over indoor spaces; however, 16% preferred indoor spaces. Following the COVID-19 outbreak, the percentage of people who preferred using outdoor public spaces increased to 92%.



public spaces increased to 92%.

Figure 7. Resident Gatherings Before and After COVID-19 in Public Spaces. Source: Author.

Furthermore, people’s frequency of using public spaces changed; for example, the frequency of using Madinaty’s central park increased to 56.5%. These changes were the result of the viral pandemic. Humans needed recreation. Different activities appeared in the park such as an outdoors gymnasium, roving kiosks for eating, and a paper kite game. In addition to the author's observation, we found that people prefer to spend time at the central park on weekends more than that in backyard gardens, although these gardens have higher frequencies of visits on weekdays. Overall, the outbreak of COVID-19 led to an increase in using outdoor spaces with the exception of Madinaty club, where activity decreased due to lockdown regulations. This is illustrated in Figure 7.

Another reason for the increase in activities in outdoor spaces was closed indoor gyms. Given that social distancing was dictated as a separation of two meters, these gyms enforced reservation rules at least an hour before time of arrival in order to decrease viral transmission between their customers. Adding to that is the general fear people had towards indoor spaces.

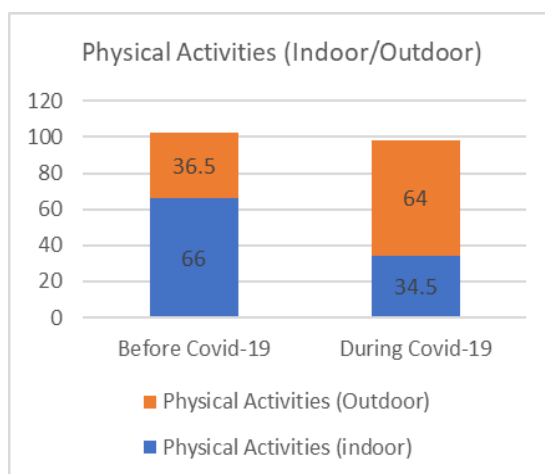
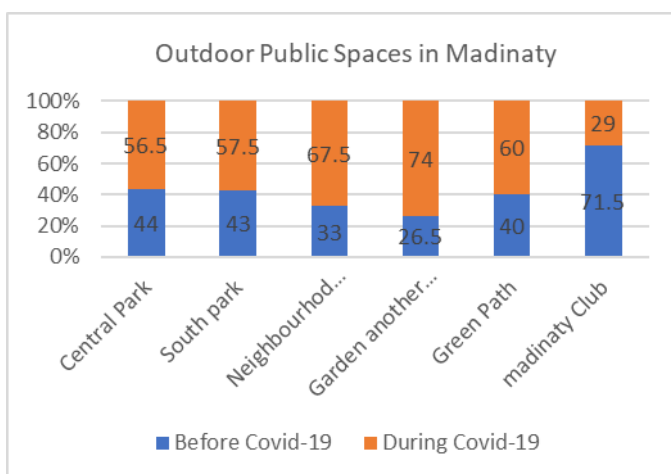


Figure 8. Outdoor Public Spaces Before and During COVID-19. Figure 9. Indoor and Outdoor Physical Activities Before and During COVID-19. Source: Author.



Overall, physical activity awareness increased during the pandemic. Before COVID-19, 58% of people did not train or do physical activities, as opposed to 42% who performed frequent workouts. During lockdown, the latter percentage increased to 49%; and in the post-pandemic stage, it increased to 68%. Alternatively, some people took their physical workouts to the outdoor spaces in the form of walking, running, and cycling. Contrary to this, indoor gym activity decreased by 13%. Football games, despite a popular activity in outdoor spaces, notably decreased from 60% to 40% as a result of social distancing regulations.

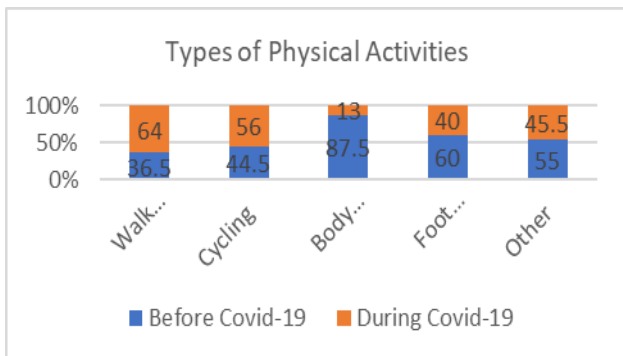


Figure 9. Types of Physical Activities Before and During COVID-19. Source:Author

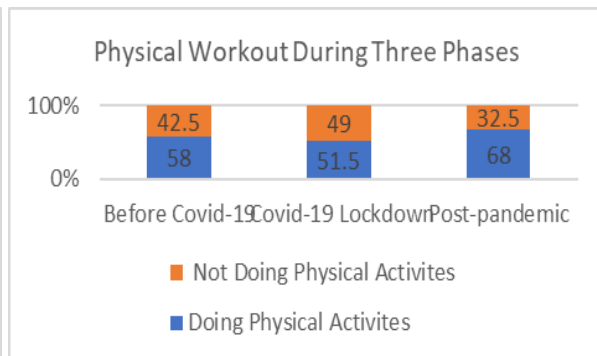


Figure11. Physical Workout During Three Phases. Source:Author.

Accessibility:

Access and linkage indicators showed that 83% of services access takes 10 minutes of walking, 14% from 10 to 20 minutes, and 2.8% longer than 20 minutes. Before COVID-19, 78% of respondents used their private cars to buy basic needs, 6.3% of respondents used Madinaty public transport, 1.8% respondents used bikes, and 20.7% respondents just walked. During the pandemic, the percentage of people who used private cars increased to 91.9%, public transport decreased to 4.5%, bikes increased to 3.5% and walking responses also decreased to 14.4%.

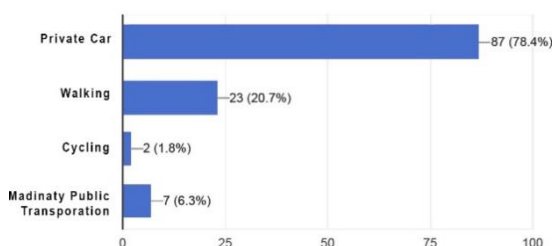


Figure 12. Transportation Systems Used to Buy Basic Needs Before COVID-19. Source:Author.

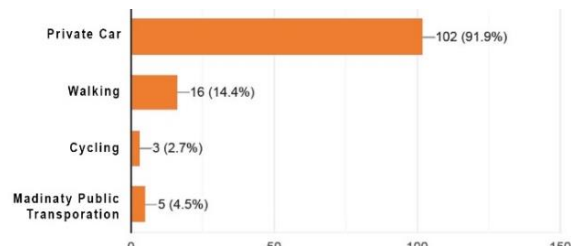


Figure 13. Transportation Systems Used to Buy Basic Needs During COVID-19. Source:Author.

The **third part** of the questionnaire entailed evaluating the extent of people’s awareness concerning the use public spaces and their effects on health and well-being. The responses found a notable increase in the number of people who used outdoor public spaces. The measurement of awareness of Madinaty residents’ opinions was divided on a linear scale from one to five. One is completely changed; and five is not changed. More than 32% of opinion was changed,35% were neutral and 7.2% were not changed as shown in

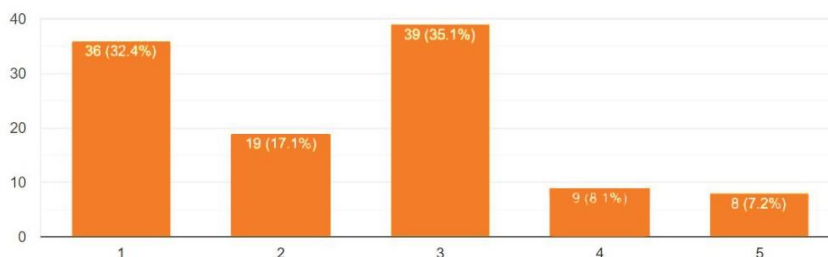


Figure 14. Madinaty Resident's Awareness After Using Outdoor Public Spaces in the Pandemic. Source:Author.

### 5.3 Interview Results

The results of an interview held with Madinaty citizens to understand the outdoor spaces frequented by residents before and during COVID-19 and, additionally, measure differences in people's mental awareness with regards to using outdoor public spaces. The interviewee's ages ranged from 25 to 35 years. They mentioned, "I didn't do any physical activity wither going to any outdoor gardens before COVID-19; but during the pandemic, I spent some time doing workouts, walking in outdoor gardens, and I decided to leave my car and walk to buy my needs as well as enjoy seating in Central park with my family."

The previous response compared the user's pattern changes that held since the beginning of the COVID-19 crisis. The walkability awareness increased; moreover, easy access to the service areas led to ease of movement within the city. In a different way of thinking, another respondent who was 31 years old said, "I loved spending time in Madinaty before COVID-19 because I enjoyed going to outdoor gardens since I moved to live in 2013. The pedestrian paths are eco-friendly, no crossing circulation between pedestrian and vehicles; also, my sister's kids could go outdoors in the backyard gardens without fear of anything because of safety and the security guards in each neighborhood. During COVID-19, we spent more time in our outdoor spaces and walking to different backyard gardens in Madinaty." The previous respondent is a female that enjoys living in Madinaty with her family. She highlights the reason for using outdoor spaces and that the city is a healthy place to live in, encouraging walkability, cycling, green spaces, and safety all while being pedestrian-friendly to its users. The two main outcomes from this interview are Madinaty residents' realization of the importance of going to outdoor public spaces to drawback from the pandemic's crisis; and considering the city was designed as a healthy city, people are encouraged to use outdoor spaces more so than before. Likewise, mental health awareness is increased.

## 6. Results

To sum up the findings, this paper determines the importance of healthy public spaces during COVID-19. Significant results from Madinaty public spaces were assessed as a case study and affirmed the findings. According to placemaking, the findings approved that pandemics create a change in human behavior operating in outdoor public spaces. The outcome of this paper highlights major variables that influence decision-making to develop a placemaking model, which includes the following;

#### Sociability:

- Physical activity such as walkability increased to sixty-four percent and cycling to fifty-six percent.
- Before COVID-19, several males and females were frequenting indoor gyms; and during COVID-19, various males opted for cycling and running whereas females preferred walking and running in Madinaty's outdoor spaces.
- Land use of public spaces changed during the lockdown; South park was closed so people used to do activities outdoors such as cycling; on the other hand, Central park activities adapted to the lockdown as well as social distance regulations, which manifested in the appearance of moving food kiosks, cross-fit areas, and adding benches with two-meter separations to reduce viral spread; additionally, the green path was changed to a walking and running area during the lockdown.

#### Uses and activities:

- During the lockdown, several phenomena were observed such as people gathering in petrol gas stations opening their car's trunks and sitting together; the land use of commercial public parking was converted to a seating area.

#### Access and linkage:

- People's frequency in outdoor public spaces increased to ninety-two percent during the lockdown and opening periods.
- Regarding observation, the frequency of people was higher in backyard gardens during weekdays but increased in outdoor parks such as Central Park and South Park during weekends.



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Comfort and image:

- Fifty-five percent found that people's awareness regarding using outdoor public spaces was a reason for decreased pandemic drawbacks, thirty-five percent were neutral, and fifteen percent did not change their mind.
- Before COVID-19, eighty-seven percent were using their cars to buy their needs; however, during COVID-19, that percentage increased to ninety-one percent. Alternatively, the percentage of using public transportation decreased out of fear of the disease's spread.
- Adding new signage to wear face masks, respecting social distancing, and sanitation awareness.



Figure 15. Images of Madinaty public spaces , outdoor Activities such as Cycling, walking, and skateboard, adding Woven Food Trucks with seat benches keeping two-meter during the post-pandemic phase.

Source: Author.

## 7. Discussion & Conclusion

Four indicators of placemaking such as uses and activity, access and linkage, comfort and image, and sociability cover healthy public spaces indicators which are related to people. This paper shows the impact of a pandemic on public spaces during two phases: the first phase being the lockdown and the second being post-pandemic re-habitation in terms of changes in human needs, human behavior, social aspects, and well-being awareness. This article focuses on Madinaty city designed to respect “the 15 min City” as a case study in Egypt. The surrounding environment in Madinaty is designed predicated on a basis of sustainability in terms of indoor and outdoor public spaces.

From the assessment tools that the research used, it was marked that the responses related different uses to outdoor spaces, physical activity deviations, and people's awareness. By applying the qualitative research method, the selected case study assessed social aspect changes, human behavior patterns, and their impact on people's responsiveness to healthiness; and it provided an answer to our two research questions of how COVID-19 caused the residents to use public spaces and how the placemaking of public plazas played a noticeable role in people's presence during the post-pandemic period.

They argue in the literature that healthy public space indicators might change to adapt to new users' needs, the primary step toward developing a placemaking model coop with post-pandemic challenges.

The added value of this study is to validate that placemaking indicators played a great role in people's appearance in an outdoor public area during the pandemic. Further researchers, urban designers, and planners should respect social aspects when designing new urban public spaces, respecting health and

well-being, COVID-19 regulations. The shapes of urban public spaces should show more flexibility in design transactions. One of this research's limitations was collecting data from Madinaty residents after the lockdown phase; several residents did not remember with clarity the activities and the spaces they visited during that phase.

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